



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/505,601	02/16/2000	David McCutchen		6625

7590 03/29/2004
David McCutchen
2444 SE Tibbetts Street
Portland, OR 97202

EXAMINER

AN, SHAWN S

ART UNIT PAPER NUMBER

2613

DATE MAILED: 03/29/2004

5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/505,601

Applicant(s)

MCCUTCHEN, DAVID

Examiner

Shawn S An

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 28-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 and 24-27 is/are rejected.
- 7) ☒ Claim(s) 23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Restriction/Election

1. Applicant elects without traverse, the distinct specie I, which reads on claims 1-27.

The requirement is deemed proper and is therefore made **FINAL**.

Specification

2. Claim 1 is objected to because of the following minor informalities: On claim 1, lines 2 and 3, the element "." after "i" and "ii", respectively, should be omitted, because a period, "." is not permitted except at the end of the claim. Appropriate correction is required.

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

On claim 9, "means for transmission" lacks antecedent basis.

Drawing

4. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the description of the elements (numbers in some Figs.) as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-21 and 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keast et al (5,721,585) in view of Schonherr et al (5,305,035).

Regarding claim 1, Keast et al discloses a camera for recording a panoramic field of view in a scanning fashion, comprising:

a rotatable shroud (Fig. 1, 30) having an axis of rotation and a perimeter; and
at least one subcamera (20) disposed at the perimeter of the drum, comprising:
a lens (fish eye, 20) having an optical axis being not radial to the axis of rotation (horizontal) and an image plane; and
a linear sensor (44) having a sensor area which intersects the optical axis and which lies within the image plane.

Keast et al's rotatable shroud does not exactly appear as a rotatable drum.

However, Schonherr et al teaches panoramic camera with objective drum (Fig. 1).

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a camera for recording a panoramic field of view as taught by Keast et al to simply incorporate the Schonherr et al's rotatable drum for improving features such as to accommodate the light safety.

Regarding claim 2, Keast et al discloses the optical axis of each lens being somewhat close to tangential to the perimeter of the shroud (Fig. 3A). Therefore, it

would have been obvious to a person of ordinary skill in the relevant art to simply re-position the optical axis of the each lens so that the lens are substantially tangential to the perimeter of the shroud as a preferred User's design choice.

Regarding claim 3, Keast et al discloses an even number of subcameras being disposed at the perimeter of the shroud (Fig. 3A).

Regarding claim 4, Keast et al discloses the subcameras being disposed substantially on same sides of the shroud (Fig. 3A), Therefore, it would have been obvious to a person of ordinary skill in the relevant art to simply re-position the subcameras so that the cameras are disposed substantially on opposite sides of the shroud, thereby providing a repeated viewing of objects in the surrounding environment from two points of view with parallax separation as is well known in the art.

Regarding claim 5, Keast et al discloses a vertical FOV of at least 160 degrees (abs.)

Regarding claim 6, the Examiner takes official notice that a linear sensor producing a monochrome signal for an obvious reason of displaying black and white or grey image signal is conventionally well known in the art.

Regarding claim 7, Keast et al discloses the linear sensor being sensitive to the infrared wavelengths (col. 1, lines 7-13).

Regarding claim 8, Keast et al discloses the linear sensor producing a color signal (col. 1, lines 14-24).

Regarding claim 9, Keast et al discloses means for transmission being coupled to the sensors (Fig. 3B, 54 and 57).

Regarding claim 10, Keast et al discloses rotating shroud at 360 degrees, and repeated in regular periods (abs.).

Regarding claims 11-13, Keast et al discloses the rotation at least 30 times or more per second (col. 6, lines 54-56). Therefore, it would have been obvious to a person of ordinary skill in the relevant art to simply change the rotation to at least 15 times per second for design preference as is well known in the art.

Regarding claim 14, since Keast et al discloses the cameras being disposed substantially on opposite sides of the shroud for stereoscopic viewing, that would

virtually balance the camera weight in the axis of rotation since each camera near the perimeter of the drum would counter balance each other's weight.

Regarding claim 15, the Examiner takes official notice that means for aerodynamic lift is conventionally well known in the art for the purpose of aerodynamically lifting an apparatus or a device.

Regarding claim 16, Keast et al discloses a linear sensor representing picture information being grouped together to form images representing a portion of a rotation (abs.).

Regarding claim 17, Keast et al discloses image compression (abs. encoding).

Regarding claim 18, the Examiner takes official notice that extracting a movable region of interest from picture information is well known concept in an image processing art for the purpose of review, analysis, storage, etc.

Regarding claim 19, Keast et al discloses the images each represent one complete rotation (col. 4, lines 46-50).

Regarding claims 20-21, the Examiner takes official notice that a stereoscopic displaying process obviously involves the images representing the right and the left images, therefore, the stereoscopic separation, wherein, ultimately both images are viewed together as a stereo pair, thereby being able to view the images as having a stereoscopic effect.

Regarding claim 24, Keast et al discloses recording means representing picture information (col. 1, lines 8-13).

Regarding claim 25, the Examiner takes official notice that a mux or a multiplexer is a well known device for multiplexing the input signal.

Regarding claim 26, the Examiner takes official notice that it is conventionally well known feature for a conventional recorder to include a film recorder for recording/displaying purposes, wherein the electrical signals are first converted into light (colors) before being recorded on a strip of a photographic film.

Regarding claim 27, the Examiner takes official notice that a conventional recorder inherently comprises of a playback button for subsequent playback of the pictorial information.

7. Claims 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Keast et al and Schonherr et al as applied to claim 1 above, and further in view of Sheiman et al (4,235,515).

Regarding claim 22, the combination of Keast et al and Schonherr et al does not particularly disclose the convergence of the stereoscopic images being controlled by a lateral distortion of one of the images relative to the other.

However, Sheiman et al teaches the convergence of the stereoscopic images by controlling a lateral distortion of one of the images relative to the other (abs.).

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a camera for recording a panoramic field of view as taught by Keast et al to incorporate the concept as above as taught by the Sheiman et al so as to avoid the distortion of the images, thereby enhancing the stereoscopic image as viewed by an user.

Allowable Subject Matter

8. Claim 23 is objected to as being dependent upon a rejected base claim 1, but would be allowable: if claims 23 is rewritten in independent form including all of the limitations of the base claim 1 and all of the intervening claims.

Dependent claim 23, recites the novel feature, wherein a range finding sensor on the drum is used to determine the amount of lateral distortion applied.

The art of record fails to anticipate or make obvious the novel features as specified in the dependent claim. Accordingly, if the amendments are made to the claims listed above, and if rejected claims are canceled, the application would be placed in condition for allowance.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- A) Peleg et al (6,665,003 B1), System and method for generating and displaying panoramic images and movies.
- B) Lipscomb et al (6,031,541), Method and apparatus for viewing panoramic 3-D scenes.
- C) Watson et al (3,591,269), Conical scan panoramic camera.

10. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700.

11. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to **Shawn S An** whose telephone number is 703-305-0099. The Examiner can normally be reached on Flex hours (10).

12. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



SSA

SHAWN S. AN
PRIMARY PATENT EXAMINER

Primary Patent Examiner

3/25/04